

Case Study

Marubeni

KOMATSU

Client
Equipment

Lumsden & Carroll
intelligent Machine Control

Overview

Using our innovative intelligent Machine Control technology we show you how to complete a complex job safer, more accurately and much faster than with your standard 20 tonne machine.

“the main Health & Safety benefit is not requiring any persons within close proximity of the excavator whilst cutting the slope...”



Here at Marubeni-Komatsu, we're incredibly proud of our revolutionary machine control and guidance system; **intelligent Machine Control.**

By now you'll know that it's fully factory integrated with the qualities and benefits you already come to expect on our standard machines. You'll also know that the exclusive control function lets

you focus on moving material efficiently, with no worry about digging too deep or damaging the target surface. From rough digging to finish grading, our **iMC** machines drastically improve efficiency, precision and most of all, safety.

In this customer case study we will demonstrate the clear benefits of using iMC.

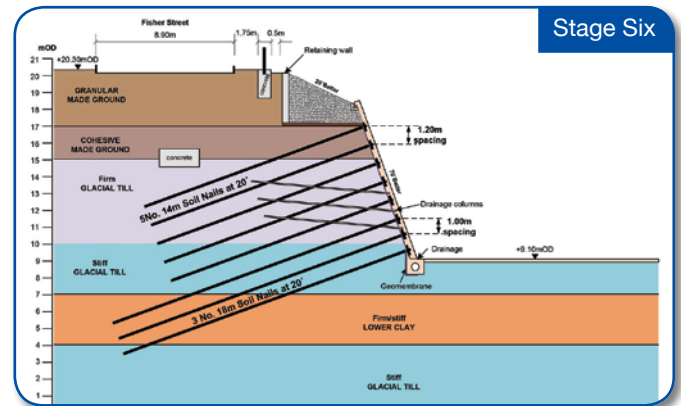
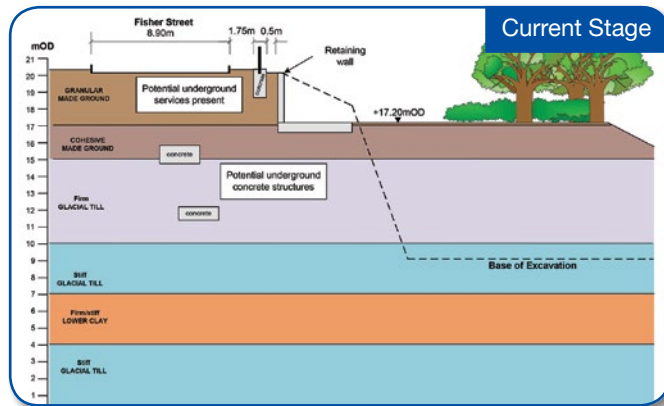


You've been telling us for years how difficult it is to get highly skilled plant operators on site and we know better than anyone that good operators excel using good products.

We've heard from you time and again about the excessive use or over-dig of materials too. Just like every industry, you want value for money and a tangible return on investment through

innovative technology - making difficult, time consuming jobs easier and faster. **Read on and discover how iMC helped Lumsden & Carroll in their scenario.**

The Fisher Street Scheme



The Fisher Street scheme is comprised of the construction of a development plateau at the quayside level, which is 10 metres below the current site level, using soil nailed slope stabilisation techniques. The proposed profile of the site was to be a 3.5m wide 21 degree slope as a landscape zone at the top and a 9 metre high soil nailed slope at 65 degrees down to the plateau level. The soil nails were installed from the top down, one row at a time (each row is 1.5m deep), therefore reducing the site level by 1.5m at a time.



The top 21 degree slope was cut using traditional site engineering methods utilising profile boards, batter rails, string line and a measuring tape making this labour intensive and a relatively slow process. Lots of options were considered on how L&C would control the line & level during the cutting of the 65 degree slope. L&C tried using templates, rotating lasers, profile boards, batter rails and a robotic total station.

L&C settled on using traditional batter rails set at the crest of the slope attached to the timber post & rail fence and then, instead of using a string to trace the slope angle, they would use spirit levels with built in laser pointers set at 75mm offset from the cut face. The spirit levels were located on the top edge of the batter rails, which were set at 65 degrees, by an operative on top of the slope behind the fence. The laser dot would then project down at

the required angle and the 2nd operative, who was directing the excavator driver, would check that the face was 75mm back from the red dot. This checking was a constant repetitive process to ensure that the cut was as accurate as possible. There was however an element of guesswork between the locations of the batter rails.

The Problems

The first problems arose when it was noticed that the batter rails had moved slightly due to settlement and even though it may have only been a fraction out of angle this would lead to considerable differences further down the slope.

The second problem was that there had to be an operative at the top of the slope most of the time and also an operative at the bottom directing the excavator. This also slowed the excavation down due to the amount of times the face had to be checked with a tape measure.

The third problem was that the soil nailing operation was right up behind the machine and the driver was often waiting for others to progress. To combat this L&C had to employ a third operative to work with a second excavator that was required to bulk excavate away from the slope.



The Solution

With the introduction of Komatsu's **IMC** system, Lumsden & Carroll will be able to encourage more operators from the company to do more skilled operations. They'll be able to save time, money on digging operations, costly materials; and see all the work progression live*. Furthermore Lumsden and Carroll will be safe in the knowledge that the operator is fully aware of the service zones of known service, which in turn, keeps employees safe and productivity high.

Marubeni-Komatsu arranged for a trial of the Komatsu PC210LCi Intelligent Excavator for Lumsden & Carroll in time to start excavating for the 3rd row of soil nails. This came about after one of the site team went on a tour of the Komatsu factory and saw a demonstration of its capabilities.



A surveyor from Marubeni-Komatsu came to site with the machine to set up the GPS system and load the 3D model into the machine's computer. A fully trained Komatsu demonstration driver also came and gave L&C's excavator operator a short tutorial on how

to use the computer and the controls. Soon the operator was cutting the 65 degree slope with ease and without the need for a banksman constantly checking the accuracy.



* Requires Sitelink3D subscription service

The Outcome

By mid-morning the next day, the excavator was well ahead of the soil nailing operations and had to be stopped from going too far.

It was during this time that L&C noticed discrepancies between the previously cut slope above and the newly cut slope below.

As mentioned previously, the slope for the first two rows of nails were cut using traditional batter rails and now L&C could see that there was a discrepancy, sometimes up to 70mm. As a result, they smoothed the difference out prior to the slope being nailed.

When L&C progressed to the 4th row there was a perfectly seamless interface between the excavation above and below. L&C decided to continue the remainder of the slope with our **IMC** machine. The below image shows how the PC210LCi was able to improve productivity...



Health & Safety and Risk Mitigation

Lumsden & Carroll say that the main Health & Safety benefit is not requiring any persons within close proximity of the excavator whilst cutting the slope, the banksman can stand at a safe distance and still safely carry out his watching brief duties.

There is no risk of over excavation as the bucket cannot physically go deeper than design level when working in automatic digging mode.

Learn More



Scan this QR Code from your mobile for more info on **IMC** or visit:

www.mkl.co.uk/new-equipment/hydraulic-excavators/automated-excavator-with-digging-depth-control.html



Now that you've read about the real-life benefits of **IMC**, try out the technology for yourself? We'd be happy to demonstrate it's capabilities on one of your job sites.

To book your on-site demo call us on 01527 512512

Contact our Demonstration team today and begin to understand the true benefits of **IMC** in your business.



Marubeni-Komatsu Ltd
Padgets Lane
Redditch
Worcestershire B98 0RT
United Kingdom

Tel: 01527 512512

Fax: 01527 502310

Email: info@mkl.co.uk

www.mkl.co.uk